

His mother reported his bowels had moved about a dozen times during the night and morning. I gave him calomel and soda and ordered that his abdomen be hot packed and the rest of his body be cold sponged every two hours. I saw him again at 5 P. M. and found his condition about the same. I continued the calomel and soda and gave directions to continue the cold sponging and hot pack. The following morning his temperature was still 103° but otherwise he seemed better, his pulse being 100. His mother at this time was very anxious to know what he was to eat. I told her to give him nothing till I should give her orders to feed him, and warned her that if she starved the boy now he would live, and if she fed him, he would die. At 5 P. M. he was slightly better, but his temperature was still 103°. I now learned that his mother had kept the hot pack to his abdomen, but that she had been giving him warm sponge baths every two hours instead of cold because she "was afraid to drive the fever in on him." After a forcible talk, the mother consented to carry out the bathing as directed, and next morning the temperature was 102°, and the following evening 101°, and from that time on the convalescence was continuous and rapid, the patient being discharged on the eleventh day. The only medicine other than calomel and soda was equal parts of pepsin and bismuth subnitrate. The strict fast of the first three days was the most important element in the management of the case.

The second case that I shall report is that of a soldier of the Thirtieth infantry, who, being anxious to part as quickly as possible with the wealth he had inherited from his Uncle Sam, had liberally indulged in tuba and other oriental and tropical curiosities in the way of food and drink. The next morning at sick call he presented himself at the hospital, acknowledging that he had partaken freely of tuba. He had been vomiting almost constantly for three hours. His bowels had moved some five or six times and he had great pain in the abdomen. His temperature was 104° and his pulse 110. He was given calomel and soda and was to have nothing in the way of food until ordered, which proved to be sixty hours. That evening his temperature was 103° and the next morning 102°, and the vomiting was under control, and everything looked like plain sailing. On the evening of the third day he was allowed a small quantity of malted milk and apollinaris and it was continued on the fourth day, the temperature gradually abating till on the evening of the fourth day it reached 100°. On the morning of the fifth day the acting steward met me with the information that when he went through the ward shortly after six o'clock the nurse had reported this man's temperature as being 99.6° and he was bright and cheerful. At half past seven when he went through the ward just before sick call, he found the man vomiting and complaining of severe pain in the stomach and his temperature was 103°. He was again given calomel and soda and the milk and apollinaris discontinued. The vomiting proved so severe that oxalate of cerium was given but without effect. For the next four days the temperature varied from 103° to 105°. There was pain and slight distension over the stomach, and over the bowels shifting colicky pains. Diarrheal discharges were frequent, containing much mucus but with no tenesmus, and very slight odor. About noon of the ninth day the temperature dropped to 102° and did not rise again. His pulse, which had been from 110 to 118, rose to 125. A clear case of collapse from exhaustion. Hot packs had been constantly applied to the abdomen and cold baths to the rest of the body from the recrudescence of the trouble. The heat and moisture had controlled the pain in the stomach and bowels. Bismuth and pepsin was the only thing that had any effect on the vomiting, and it was only partially successful. The patient died during the fore part of the night of the tenth day, worn out apparently by the almost constant uncontrollable vomiting.

I have reported these two cases simply to illustrate how cases will vary where the initial cause is well known. In obscure cases, or where there are complications, we may expect trouble at any time, but in plain uncomplicated cases a fatal termination is very rare. But in these cases a slight indiscretion unknown to the attending physician will make all the difference in the result.

**Treatment.**—In the way of treatment I know of nothing new to offer or suggest. It has been a rule with me to begin with a purge of calomel and soda. Then for the next two or three days to keep the patient fasting. The hot pack on the abdomen will in nearly every case give relief from the pain and often helps to control the vomiting. Sometimes, however, a cold pack will give more comfort and relief than the hot one. Whenever the temperature gets near 103°, as in other inflammatory troubles, I give a cold sponge bath and repeat it as often as is neces-

sary to keep the temperature down. Internally, I get more benefit from bismuth and pepsin than anything else. I give it in equal parts and do not give the doses close together, believing that the stomach should not be teased by medicines or food at short intervals. As for food, I only give milk and aerated water of some kind, and then only after all vomiting has subsided. Beef tea and broths and soups all seem to do more harm than good. Tea, either hot or cold, I have found injurious on account of the tannin. Cracked ice, if you are sure it is made of distilled water, in cases where the cold pack gives more relief than the hot, will be found to be grateful to the stomach, and sometimes seems to do good. Small quantities of carbonated water at short intervals may be given. Hot milk has been a failure in my hands, though I have tested it faithfully. As a rule the pain is not severe enough to require a hypodermic of morphia; morphia does more harm than good, and in the majority of cases the hot pack controls the pain just as well. Often in the early stages a mild mustard plaster will apparently abort a case, and nearly always gives great relief. After the case has been fully developed it does no good and is a discomfort to the patient.

**Geographical distribution.**—From my personal observation I am led to believe that it is slightly more prevalent in the southern part of this country and in the tropics, e. g. in Southern Texas and the Philippines, than in the northern part of the country; but southern latitudes seem to make no difference in its severity, differing in this respect from other abdominal troubles.

I think it possible, if not probable, that it is more likely to become chronic in southern and tropical locations than in the north and in that way leave its victims dyspeptic invalids.

## THE COMPLICATIONS AND SEQUELÆ OF MEASLES.\*

By J. MAYER, M. D., Oakland.

**BELIEVE** it is usual for a chairman, as a preliminary, to say something regarding the status of the work in which his section is particularly interested and especially with reference to what has been accomplished during the preceding year. Since our last meeting I do not remember that any particular feature of our work has assumed special prominence. Perhaps the things which have recently claimed most of our attention are the control of the exanthemata and infant feeding—the latter including our milk supply.

Although smallpox and diphtheria have been placed somewhat under scientific control, the remaining exanthemata, with mal-nutrition, are, with the one exception of abortion, responsible directly or indirectly for the greatest destruction to human life in what might properly be called its incipency. Our investigators are giving special attention to these subjects, and their work for the past year has been in keeping with general medical progress. The question of a specific for the prevention and cure of the remaining exanthemata is undergoing investigation, and we hope is in a fair way for solution in the near future. But while the medical world awaits the outcome it is for us to make the best use we can of the means at our disposal in the management of those diseases which we have not yet learned how to prevent.

To take the place of an extended commentary on the present status of pediatrics I have chosen to present a short paper on the complications and sequelæ of measles, with a few suggestions relative to their prevention. It is, unfortunately, true that there is little to be said on this subject which is new, and I

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shall, therefore, be able to do little more than refresh your memories.

Measles, as we usually see it, is a disease attended with discomfort rather than danger, and requires little more than judicious nursing. It is dangerous only in its complications; however, it is doubtful whether there is in the human body a single tissue which is exempt from the possibility of modification, temporarily or permanently, as a result of an attack of this disease. It is not the intention to in any way try to exaggerate or to attach undue importance to insignificant conditions, but to express my belief that ordinarily measles does not get the consideration which its importance demands. And medical men are beginning to find this out.

It is hard to combat the old notion that measles is something akin to a common cold with a rash, and that there is nothing to be done but keep the patient warm. It is also difficult, as you know, to have people accept a new medical idea, which is not to be wondered at. The truth is that we, ourselves, too often encourage indifference by some such remark as "It is only measles."

Gentlemen, experience has taught me that every case of measles should be looked upon by a physician as involving not only the question of the future usefulness and well-being of the subject, but even that of his life.

The complications and sequelæ of measles, immediate and remote, are so many and varied that I shall only have time here to deal with the most common and dangerous ones.

On account of the catarrhal accompaniments of this disease and the favorable conditions thereby afforded for the development of the various micro-organisms, the mucous membranes, and particularly of the respiratory tract, are most apt to suffer. The most frequent, as well as the most dangerous complication, is broncho-pneumonia. It occurs, perhaps, in from five per cent of cases under favorable conditions, to twenty per cent, or even more, in severe epidemics. It is more liable to prevail in institutions where children are crowded together. Of all the complications of measles, this is the one which furnishes the highest death-rate. Broncho-pneumonia is generally a secondary infection—always so in fatal cases. It usually starts up during the eruptive stage, but may come on at any time. The indifference of parents and the carelessness of nurses are responsible for many cases of broncho-pneumonia occurring during convalescence. It is not always due to neglect, however. A certain percentage of the cases are bound to go wrong in spite of all precaution, for in many children there are latent conditions which need only an exciting cause to light them into activity, and this stimulus is furnished by an attack of measles.

It is not always easy to mark the point at which the usual bronchial catarrh merges into pneumonia, but the absence of general improvement at the time it is to be expected should put the physician on his guard. The condition is generally indicated by the usual manifestations; but not infrequently it is present in the almost total absence of abnormal physical signs. If the temperature does not fall with the full development of the eruption, or, when after subsiding, it rises again without evidence of throat, ear or gland involvement, broncho-pneumonia is to be suspected. Furthermore, if, in addition to the high temperature, the patient shows marked dyspnea, rapid pulse, painful cough and general distress, the condition hardly admits any other interpretation.

The broncho-pneumonia of measles does not seem to differ in any marked way from that of an ordinary case, with the exception of the greater liability to exhaustion from the multiple intoxication; and also in

the tendency of all measles complications to assume the chronic form.

Lobar pneumonia may simply be referred to as one of the occasional complications. But some authorities are inclined to the opinion that the specific poison of measles produces a special form which tends to tuberculosis.

Another of the dangerous and rather common complications is laryngitis, which may be of various types and degrees of severity. This complication, according to Holt, furnishes, next to pneumonia, our greatest percentage of deaths. The simplest form is but an aggravation of the usual catarrh accompanying measles. However, it occasionally assumes a spasmodic element dangerous to very young children. More dangerous still is the membranous form. Experience has shown that, as a general rule, when this complication appears early in the disease, it is caused by streptococci; but later on it is more probably true diphtheria. In aggravated cases of this type, the chances are always against recovery. Fortunately, it is not very common in private practice. When this condition has progressed so far as to demand surgical interference, and after a judicious use of the serums, very little is to be hoped for.

Otitis media, with all its possible concomitants, is, perhaps, the next complication, in point of frequency, with which we are confronted, and is the one which, of all others, probably entails the greatest amount of suffering. It is secondary to pharyngitis, and generally comes on late. Earache is more or less common in the eruptive stage, but it is often temporary and subsides with the eruption. When, however, secondary infection occurs through the eustachian tube we have, not only an obstinate, but a dangerous condition to deal with. I am reminded of a patient of mine, a boy of fourteen or fifteen years, who presented one of perhaps a dozen cases of measles which I have lately had occasion to attend at an educational institution in Oakland. There was nothing unusual in the case till about the twelfth day, when, without any warning, and even while still in bed in a warm room, he was attacked with otitis media. The fever and pain increased rapidly—the former reaching 106° on the second day. He was removed to the Waldeck Hospital, in San Francisco, where the mastoid cells were twice operated upon. I believe he has just left the hospital, after a slow recovery. Another of the twelve developed broncho-pneumonia without any apparent cause beyond that of having had the measles. I need not recount to you the evil possibilities of an attack of otitis media. Not only is the impairment of hearing probable but the chances of living through it are sometimes exceedingly slim.

The gastro-intestinal tract is also subject to various derangements and should receive close attention. These disturbances may range anywhere from catarrhal diarrhea to membranous colitis, ulceration, hemorrhage, etc., with their attendant consequences. They arise from a combination of two causes: first, indiscretions in feeding; and second, excessive secretion in the elimination of toxins. As a rule, the younger the patient the more liability to digestive disturbance.

A mild conjunctivitis may be said to be almost a part of measles, but now and again, particularly in strumous children, the deeper eye structures, especially the cornea, may be the seat of destructive changes.

The condition of the mouth, tonsils and pharynx, as well as of the upper air passages, during an attack of measles demands, and should receive, the closest attention. If, in the absence of proper care, or in spite of it, abrasions of the mucous surfaces occur, absorption of septic material and consequent poison-

ing of the glands and deeper tissues, with all that it implies, is not only possible but extremely probable.

A complication which occurs often enough to be noted here is suppression or delay of the eruption, and when it arises, from whatever cause, it should give us no little concern. The causes which bring this about are exposure to cold and over-feeding with consequent excessive vomiting, in the prodromal stage. It may be a combination of both. Another cause is general low vitality—a lack of sufficient systemic energy to get up a reaction. For days the little patient may not be able to retain a particle of nourishment. The temperature will drop below the normal, the virus of the disease seems for the time to have overwhelmed the vital powers, and a state of coma, with general tendency to collapse, supervenes. This condition calls for prompt measures. Warm and stimulating applications to the surface, rectal feeding, with rectal and hypodermatic stimulation, should be resorted to for the purpose of sustaining the patient and bringing about a reaction. The heart action in these cases is usually very slow as a result of the poisoning of the nerve centers, and it requires close watching till the eruption is established.

There is not much tendency to involvement of the nervous system. Convulsions from hyperpyrexia in the early stages are occasionally seen in younger children. When they arise later on they are in this, as in other diseases, of much concern, depending usually on some dangerous complication. Mental derangements occur now and again, but are generally evanescent; much depends upon individual temperament.

The foregoing are the common complications for which, in every case of measles, we should be on the lookout. The occasional complications, however, must not be overlooked. I shall mention here only a few of them: Meningitis, nephritis, myo-, endo- and pericarditis, pleuritis, vulvitis and acute synovitis. In parturient women, or in those aborting, the existence of measles predisposes to septic infection.

The relation of measles to other diseases has long been a matter of speculation by the medical profession. It has been noticed that measles is exceedingly liable to be followed by other diseases. Particularly is this so with whooping cough and tuberculosis. Is measles the predisposing cause of other diseases, or is it merely the agency by which a latent infection is aroused to fresh activity? Is whooping cough a separate entity, or only a manifestation of nervous instability or irritation arising from some unknown source? One would expect that its apparent contagiousness ought to have a bearing on the settlement of this point. If the first theory be correct, measles certainly furnishes an opportunity for the easy introduction of whooping cough, as well as of tuberculosis, by the breaking down of the normal systemic defenses. Tuberculosis is the most common of the sequelæ of measles, and particularly the pulmonary variety. Tubercular involvement of the glandular system, and also of the joints, will be found as sequelæ of measles, according to the varying degrees of susceptibility.

A few days ago I was rather unexpectedly confronted with the question of how far secondary infection by measles may aggravate other diseases or systematic tendencies. Ten days after the apparent termination of an attack of measles the subject, a railroad man, left the S. P. Hospital in San Francisco and went to his home in Oakland. That night he died suddenly. Through the courtesy of Dr. Milton I was present at the autopsy, which revealed a state of things somewhat interesting. The postmortem lividity seemed to me somewhat exaggerated. The blood vessels of the brain and meninges were considerably in-

jected. The same condition obtained generally through the abdominal viscera. There was quite a degree of opacity of the arachnoid membrane, and also of the sub-arachnoid fluid, but no increase in the quantity of the latter. There were extensive adhesions of the right pleura which, however, did not seem to be of recent causation. The heart was sent to the laboratory of the Oakland College of Medicine, and the following is a summary of the findings: "Heart soft, flabby and heavier than normal, left ventricular wall thickened. Endocardium the seat of extensive inflammation, as well as the muscle wall. Inflamed circumscribed areas varying from the size of the thumb-nail to that of a twenty-five cent piece, found in both auricles. Endocardium generally cloudy. The tricuspid and mitral valves are extensively inflamed, especially the left, which is indurated to a semi-cartilaginous consistency. On both surfaces of the mitral valve recent ulcerations contain numerous staphylococci and pus cells. A plastic adherent exudate is apparent throughout the muscular bands of the left ventricle. The chorda tendinæ are thickened and some of them seem semi-fibrous. Sections of tissue from the heart wall show extensive infiltration of small, round cells and microorganisms in the neighborhood of small blood vessels, and also scattered through the tissues. Diagnosis—Ulcerative endocarditis and myocarditis."

The record of the case at the hospital revealed the fact that three years previously this man had a venereal sore. Now, what caused the endocarditis? Was it measles, or was it syphilis aroused into fresh activity by the presence of measles? If measles can infuse new life into latent tuberculosis and other diseases, why not into syphilis? In any case it hardly admits of a doubt that measles figured prominently in this man's trouble.

The sequelæ of measles affecting the skin are from their frequency and relative obstinacy, particularly in subjects constitutionally handicapped, entitled to special consideration. Corlett says: "From the wide spread vascular disturbance of the skin, and consequent disruptive condition of the cuticle, extraneous pathogenic organisms readily gain access to the underlying structures." This probably explains why cutaneous diseases are so frequent after an attack of measles. Eczema furunculosis, abscesses and even lupus may originate in this way. Some of the occasional, but none the less important sequelæ are, Blepharitis, corneal ulcers or scars, granular lids, chronic conjunctivitis, otorrhea, chronic nasal catarrh, chronic gastro-intestinal catarrh, chronic nephritis, chronic synovitis and periosyitis, deaf-mutism, chorea, epilepsy and various other forms of nerve derangement.

In measles, as in obstetrics, the great majority of cases will, with ordinary attention, take care of themselves. In the one condition, however, as in the other, there is a considerable percentage of cases which require the careful watchfulness of the trained physician to prevent complications, or to cope with them as they arise. The precautions to be adopted for the prevention of complication in measles are, in the light of our present knowledge, nothing more than what common prudence should dictate.

When a child is taken sick, the first thing to do is to surround it by proper hygienic conditions. It should be put to bed in a warm, well ventilated room, and a competent nurse put in charge. The room should be shaded, not darkened, for darkness is not generally conducive to well-being in sickness any more than in health. The kind and amount of food should be properly regulated, and should be entirely liquid till the patient is convalescent. The patient should have access to plenty of good drinking water to quench the thirst and to aid in systemic irrigation. The many discomforts must be met as they arise.

The air of the room ought to be kept moderately saturated with moisture. As a general thing rooms are kept too warm; 70 degrees is about right. Too much bed clothing depresses the patient, and also tends to unduly irritate the skin. Should the temperature of the patient be inclined to run unusually high, small doses of antipyretics may be given. The coal tar preparations, in moderate doses are not contra-indicated. Periodical sponging with tepid water should be resorted to; this lowers the temperature, accelerates the development of the rash, thus contributing to the elimination of poisons by the skin. Should the eruption be slow in developing, and particularly where there is a tendency to depression, with attendant general discomfort, I have found excellent results from a combination of liquor acetate of ammonia and syrup of Dover's powder. The mouth, and particularly the sulci between the gums and cheeks, should be kept clean. The pharynx and tonsils should be kept aseptic, and the upper air passages kept clean and open by the use of antiseptic washes and the atomizer. If the hearing becomes affected by the occlusion of the Eustachian tube with absorption of the air from the middle ear, careful inflation should be resorted to. Earache calls for the external application of warmth, and perhaps the insertion in the external ear of a few drops of heated glycerine carrying in solution morphin, atrophin, and cocaine, as recommended by Thomas. The eyes should be kept clean by some antiseptic solution such as boric acid. Any unusual involvement of the skin needs prompt attention. Should digestive disturbances arise, laxatives, astringents or antiseptics may be called for. In giving laxatives care must be taken that the alimentary tract be not unduly irritated. Excessive nerve irritation may call for sedatives. The length of time which a patient should be kept indoors will vary with conditions. Ordinarily twelve to twenty days.

In conclusion, perhaps I cannot do better than quote, with due acknowledgement to the "Twentieth Century Practice of Medicine," some extracts from a pamphlet which, during an epidemic of measles in Glasgow, was distributed to the people by the health authorities:

Measles is a dangerous disease—one of the most dangerous with which a child under five years of age can be attacked. It is especially apt to be fatal to teething children. It tends to kill by producing inflammation of the lungs. It prepares the way for consumption. It tends to maim by producing inflammations of the ears and eyes. Measles has carried off more than four times as many persons as enteric fever. It is therefore a great mistake to look upon measles as a trifling disease. Every child ill with measles ought at once to be put to bed and kept warm, for the mildest cases may be made serious by a chill. Measles is for this reason most dangerous in winter and spring. The older a child is, the less likely it is to catch measles, and if it does, the less likely it is to die. If every child could be protected from measles until it had passed its fifth year the mortality from this disease would be enormously decreased. It is therefore a great mistake—because as a rule children sooner or later have measles—to say, "The sooner the better," and to take no measures to protect them, or even deliberately to expose them to infection.

#### DISCUSSION.

Dr. Kaspar Pischel, San Francisco.—Besides hygienic precautions (care in blowing the nose), I would suggest that the physician inspect the drum membrane every day, just as he inspects other parts of the body. If otitis media sets in, an early paracentesis will relieve the severe pain of the patient, and will cut short the danger of the infection extending to the mastoid. An early incision will prevent the breaking down of the membrane, which is so often accompanied by permanent deafness.

[For further discussion see JOURNAL, May, page 160.]

## THE MEDICO-LEGAL RESPONSIBILITIES OF THE PHYSICIAN IN CASES WHERE INSANITY IS ALLEGED AS A DEFENSE.\*

By J. W. ROBERTSON, M. D., Livermore.

WHILE the law provides that all citizens owe to the State certain public duties, yet, because of the exacting nature of our profession, we have been relieved of many of the burdens of citizenship. On the other hand, there has been placed upon us other responsibilities which are ill understood and which are often carried out with personal discredit, and injury to our professional standing.

In this paper I desire to set out, fully as I may, not the moral maxims that should guide us, for honest intentions and truthful declarations are presupposed, but certain legal fictions and cumbrous judicial procedures which entangle us in a mesh of false testimony; compelling us to misstate medical facts in order to comply with the rules of evidence.

In criminal cases there are no privileged communications and the physician, if called, must testify to all facts within his knowledge. But he can be, and usually is, called in another capacity; not to testify to specific facts, but to a theory which has for its foundation his medical knowledge. It thus happens that no matter what the case be, no matter how definitely the facts be established, physicians, standing equally well, can be found who will champion both sides and will go on the witness stand and swear to diametrically opposite opinions. So notorious has this abuse of medical testimony become that juries have been warned as to its credibility; and, from the bench, judges have declared that, as testimony, it must be regarded as a partisan statement. Yet, outside the court-room the opinion of these same gentlemen is sought on matters both medical and moral, their social standing is excellent and their reputation, as honorable men, is untarnished. It certainly is not true that their testimony can be bought and sold as so much merchandise. By what necromancy, then, is this change wrought? What power has transmuted their precious gold into this worthless dross? The explanation is not difficult. It simply means that medical facts have been taken out of the narrow limits and familiar surroundings, and have been so distorted as to fit in legal moulds, hundreds of years old.

In law nothing is good that is not old, and, until precedents have fossilized an idea and incrustated it with hundreds of decisions, it does not become a legal maxim. Medicine and law are incompatible and are types of the extremest radicalism and conservatism. In the past hundred years no science has made greater progress than medicine, while law remains a question of precedents and procedures. Imagine a modern surgeon following the treatise of John Vigo on gunshot wounds, or quoting Sydenham as to therapeutic procedures; or imagine a modern judge setting up some rule of evidence in opposition to Blackstone. He would be regarded with supremest contempt and his judgment would only excite ridicule.

In no department of medicine has greater progress been made than in the study and treatment of ailments based on a diseased brain. Not a hundred years ago the connection between the brain and the mind was absolutely denied and Spurzheim, when he asserted their close connection and proved it by arguments which are now so well established as to seem self-evident, had to brave a storm of abuse and ridicule. At the present time our laws, which judicially interpret medical facts, are based on ideas so

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